

8360 CCAGCAGCAG	8370 ATGGGGTGGG	8380 AGCAGCATCT	8390 CGAGACCTGG	8400 AAAAACATGG
8410 AGCAATCACA	8420 AGTAGCAATA	8430 CAGCAGCTAC	8440 CAATGCTGCT	8450 TGTGCCTGGC
8460 TAGAAGCACA	8470 AGAGGAGGAG	8480 GAGGTGGGTT	8490 TTCCAGTCAC	8500 ACCTCAGGTA
8510 CCTTTAAGAC	8520 CAATGACTTA	8530 CAAGGCAGCT	8540 GTAGATCTTA	8550 GCCACTTTTT
8560 AAAAGAAAAG	8570 GGGGGACTGG	8580 AAGGGCTAAT	8590 TCACTCCCAA	8600 CGAAGACAAG
8610 ATATCCTTGA	8620 TCTGTGGATC	8630 TACCACACAC	8640 AAGGCTACTT	8650 CCCTGATTGG
8660 CAGAACTACA	8670 CACCAGGGCC	8680 AGGGGTCAGA	8690 TATCCACTGA	8700 CCTTTGGATG
8710 GTGCTACAAG	8720 CTAGTACCAG	8730 TTGAGCCAGA	8740 TAAGGTAGAA	8750 GAGGCCAATA
8760 AAGGAGAGAA	8770 CACCAGCTTG	8780 TTACACCCTG	8790 TGAGCCTGCA	8800 TGGAATGGAT
8810 GACCCTGAGA	8820 GAGAAGTGTT	8830 AGAGTGGAGG	8840 TTTGACAGCC	8850 GCCTAGCATT
8860 TCATCACGTG	8870 GCCCCGAGAGC	8890 TGCATCCGGA	8900 GTA CTTC AAG	AACTGC,

wherein the nucleic acid is in an expression vector that expresses a protein comprising the amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRAEPAADGVGAASRDLEKHGAITSSNTAAT  
 NAACAWLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDI  
 LDLWIYHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLVPVEPDKVEEANKGENTSLLH  
 PVSLHGMDPPEREVLEWRFDSRLAFHHVARELHPEYFKNC.

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15. (NEW) The nucleic acid of claim 14, wherein the nucleic acid is in a eukaryotic expression vector.

16 (NEW) A nucleic acid of ORF-R of Human Immunodeficiency Virus Type 1 (HIV-1) comprising the sequence:

8250	8260	8270	8280	8290	8300
GA	CAGGGCTTGG	AAAGGATTTT	GCTATAAGAT	GGGTGGCAAG	TGGTCAAAAA
8310	8320	8330	8340	8350	
GTAAGTGTGGT	TGGATGGCCT	ACTGTAAGGG	AAAGAATGAG	ACGAGCTGAG	
8360	8370	8380	8390	8400	
CCAGCAGCAG	ATGGGGTGGG	AGCAGCATCT	CGAGACCTGG	AAAAACATGG	
8410	8420	8430	8440	8450	
AGCAATCACA	AGTAGCAATA	CAGCAGCTAC	CAATGCTGCT	TGTGCCTGGC	
8460	8470	8480	8490	8500	
TAGAAGCACA	AGAGGAGGAG	GAGGTGGGTT	TTCCAGTCAC	ACCTCAGGTA	
8510	8520	8530	8540	8550	
CCTTTAAGAC	CAATGACTTA	CAAGGCAGCT	GTAAGTCTTA	GCCACTTTTT	
8560	8570	8580	8590	8600	
AAAAGAAAAG	GGGGGACTGG	AAGGGCTAAT	TCACTCCCAA	CGAAGACAAG	
8610	8620	8630	8640	8650	
ATATCCTTGA	TCTGTGGATC	TACCACACAC	AAGGCTACTT	CCCTGATTGG	
8660	8670	8680	8690	8700	
CAGAACTACA	CACCAGGGCC	AGGGGTCAGA	TATCCACTGA	CCTTTGGATG	
8710	8720	8730	8740	8750	
GTGCTACAAG	CTAGTACCAG	TTGAGCCAGA	TAAGGTAGAA	GAGGCCAATA	
8760	8770	8780	8790	8800	
AAGGAGAGAA	CACCAGCTTG	TTACACCCTG	TGAGCCTGCA	TGGAATGGAT	
8810	8820	8830	8840	8850	
GACCCTGAGA	GAGAAGTGTT	AGAGTGGAGG	TTTGACAGCC	GCCTAGCATT	
8860	8870	8890	8900		
TCATCACGTG	GCCCGAGAGC	TGCATCCGGA	GTAAGTCAAG	AACTGC,	

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wherein the nucleic acid is in a yeast expression vector that expresses a protein comprising the amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAAT  
NAACAWLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDI  
LDLWIYHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLPVEPDKVEEANKGENTSLLH  
PVSLHGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC.

17. (NEW) A recombinant prokaryotic expression vector comprising a nucleic acid fragment of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the vector expresses a protein comprising the amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAAT  
NAACAWLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDI  
LDLWIYHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLPVEPDKVEEANKGENTSLLH  
PVSLHGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC.

18. (NEW) A recombinant *E. coli* expression vector comprising a nucleic acid fragment of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the vector expresses a protein comprising the amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAAT  
NAACAWLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDI  
LDLWIYHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLPVEPDKVEEANKGENTSLLH  
PVSLHGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC.

19. (NEW) A recombinant yeast expression vector comprising a nucleic acid fragment of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the vector expresses a protein comprising the amino acid sequence:

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MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAAT  
 NAACAWLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDI  
 LDLWIYHTQGYFPDWQNYTPGPGVRYPLTFGWCYKLPVEPDKVEEANKGENTSLLH  
 PVSLHGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC.

20. (NEW) A nucleic acid of ORF-R of Human Immunodeficiency Virus Type 1  
 (HIV-1) comprising the sequence:

8250	8260	8270	8280	8290	8300
GA	CAGGGCTTGG	AAAGGATTTT	GCTATAAGAT	GGGTGGCAAG	TGGTCAAAAA
8310	8320	8330	8340	8350	
GTAGTGTGGT	TGGATGGCCT	ACTGTAAGGG	AAAGAATGAG	ACGAGCTGAG	
8360	8370	8380	8390	8400	
CCAGCAGCAG	ATGGGGTGGG	AGCAGCATCT	CGAGACCTGG	AAAAACATGG	
8410	8420	8430	8440	8450	
AGCAATCACA	AGTAGCAATA	CAGCAGCTAC	CAATGCTGCT	TGTGCCTGGC	
8460	8470	8480	8490	8500	
TAGAAGCACA	AGAGGAGGAG	GAGGTGGGTT	TTCCAGTCAC	ACCTCAGGTA	
8510	8520	8530	8540	8550	
CCTTTAAGAC	CAATGACTTA	CAAGGCAGCT	GTAGATCTTA	GCCACTTTTT	
8560	8570	8580	8590	8600	
AAAAGAAAAG	GGGGGACTGG	AAGGGCTAAT	TCACTCCCAA	CGAAGACAAG	
8610	8620	8630	8640	8650	
ATATCCTTGA	TCTGTGGATC	TACCACACAC	AAGGCTACTT	CCCTGATTGG	
8660	8670	8680	8690	8700	
CAGAACTACA	CACCAGGGCC	AGGGGTCAGA	TATCCACTGA	CCTTTGGATG	
8710	8720	8730	8740	8750	
GTGCTACAAG	CTAGTACCAG	TTGAGCCAGA	TAAGGTAGAA	GAGGCCAATA	
8760	8770	8780	8790	8800	
AAGGAGAGAA	CACCAGCTTG	TTACACCCTG	TGAGCCTGCA	TGGAATGGAT	
8810	8820	8830	8840	8850	
GACCCCTGAGA	GAGAAGTGTT	AGAGTGGAGG	TTTGACAGCC	GCCTAGCATT	

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8860 8870 8890 8900  
TCATCACGTG GCCCGAGAGC TGCATCCGGA GTACTTCAAG AACTGC,

wherein the sequence is linked to a promoter in an expression vector that allows the expression of a protein comprising the amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAAT  
NAACAWLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDI  
LDLWIYHTQGYFPDWQNYTPGPGVRYPLTFGWCYKLVPVEPDKVEEANKGENTSLLH  
PVSLHGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC.

21. (NEW) The nucleic acid of claim 20, wherein the nucleic acid is linked to a promoter in a prokaryotic expression vector.

22. (NEW) The nucleic acid of claim 21, wherein the nucleic acid is linked to a promoter in an *E. coli* expression vector.

23. (NEW) The nucleic acid of claim 20, wherein the nucleic acid is linked to a promoter in a yeast expression vector.

24. (NEW) The nucleic acid of claim 20, wherein the nucleic acid is linked to a promoter in a mammalian expression vector.

25. (NEW) An isolated nucleic acid that expresses Nef protein of Human Immunodeficiency Virus Type 1 (HIV-1), wherein the sequence hybridizes under stringent conditions to a DNA comprising the sequence:

8250 8260 8270 8280 8290 8300  
GA CAGGGCTTGG AAAGGATTTT GCTATAAGAT GGGTGGCAAG TGGTCAAAAA

8310 8320 8330 8340 8350  
GTAGTGTGGT TGGATGGCCT ACTGTAAGGG AAAGAATGAG ACGAGCTGAG

8360 8370 8380 8390 8400  
CCAGCAGCAG ATGGGGTGGG AGCAGCATCT CGAGACCTGG AAAAACATGG

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8410 AGCAATCACA	8420 AGTAGCAATA	8430 CAGCAGCTAC	8440 CAATGCTGCT	8450 TGTGCCTGGC
8460 TAGAAGCACA	8470 AGAGGAGGAG	8480 GAGGTGGGTT	8490 TTCCAGTCAC	8500 ACCTCAGGTA
8510 CCTTTAAGAC	8520 CAATGACTTA	8530 CAAGGCAGCT	8540 GTAGATCTTA	8550 GCCACTTTTT
8560 AAAAGAAAAG	8570 GGGGGACTGG	8580 AAGGGCTAAT	8590 TCACTCCCAA	8600 CGAAGACAAG
8610 ATATCCTTGA	8620 TCTGTGGATC	8630 TACCACACAC	8640 AAGGCTACTT	8650 CCCTGATTGG
8660 CAGAACTACA	8670 CACCAGGGCC	8680 AGGGGTCAGA	8690 TATCCACTGA	8700 CCTTTGGATG
8710 GTGCTACAAG	8720 CTAGTACCAG	8730 TTGAGCCAGA	8740 TAAGGTAGAA	8750 GAGGCCAATA
8760 AAGGAGAGAA	8770 CACCAGCTTG	8780 TTACACCTTG	8790 TGAGCCTGCA	8800 TGGAATGGAT
8810 GACCCTGAGA	8820 GAGAAGTGTT	8830 AGAGTGGAGG	8840 TTTGACAGCC	8850 GCCTAGCATT
8860 TCATCACGTG	8870 GCCCAGAGAGC	8890 TGCATCCGGA	8900 GTACTTCAAG	AACTGC.

26. (NEW) An isolated nucleic acid that expresses HIV-1 Nef protein, wherein said protein binds to an antibody that binds to a protein having the amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRAPADGVGAASRDLEKHGAITSSNTAATNAACA  
WLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDILDW  
YHTQGYFPDWQNYTPGPGVRYPLTFGWCYKLPVEPDKVEEANKGENTSLLHPVSL  
HGMDDPEREVLEWRFDLSRLAFHHVARELHPEYFKNC.

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27. (NEW) An isolated nucleic acid that encodes the following amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAATNAACA  
WLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDILDLWI  
YHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLVPEPDKVEEANKGENTSLLHPVSL  
HGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC.

28. (NEW) A method of expressing an HIV-1 protein comprising inserting a recombinant nucleic acid molecule that encodes the following amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAATNAACA  
WLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDILDLWI  
YHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLVPEPDKVEEANKGENTSLLHPVSL  
HGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC

into a host cell under conditions suitable for the expression of the amino acid sequence.

29. (NEW) A method of making a recombinant nucleic acid molecule that encodes the following amino acid sequence:

MGGKWSKSSVVGWPTVRERMRRRAEPAADGVGAASRDLEKHGAITSSNTAATNAACA  
WLEAQEEEEVGFPVTPQVPLRPMTYKAAVDLSHFLKEKGGLEGLIHSQRRQDILDLWI  
YHTQGYFPDWQNYTPGPGVRYPLTFGWICYKLVPEPDKVEEANKGENTSLLHPVSL  
HGMDDPEREVLEWRFD SRLAFHHVARELHPEYFKNC

comprising replicating the recombinant nucleic acid molecule in a host cell. --

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